

1. A vacuum deposition system comprising a
film-forming chamber to be kept at a stated degree of
vacuum, and provided therein a substrate holder which
5 holds a substrate and a vapor-generating means which
generates a vapor of a deposition material which is to
be vacuum-deposited on the surface of the substrate to
come into a thin film, the system further comprising:

20 2. The vacuum deposition system according to
claim 1, which comprises a microwave-generating means
for introducing microwaves into the reaction chamber.

3. The vacuum deposition system according to
25 claim 1, which comprises a high-frequency power source
for supplying a high-frequency power into the reaction
chamber.

4. The vacuum deposition system according to claim 1, wherein the pressure control means is a pressure control valve.

5 5. The vacuum deposition system according to claim 1, which comprises a gas feed means for feeding the source gas into the reaction chamber.

10 6. The vacuum deposition system according to claim 5, wherein the gas feed means is a means for feeding into the reaction chamber at least one of oxygen gas and fluorine gas as the source gas.

15 7. A thin-film deposition process which forms a thin film by means of the vacuum deposition system according to claim 1, the process comprising the steps of:

20 ionizing the source gas in the reaction chamber and thereafter opening the pressure control means of the communicating portion to introduce an ionized source gas into the film-forming chamber; and

Sub A-17 generating a vapor of the deposition material in the film-forming chamber to form the thin film.

25 8. The thin-film deposition process according to claim 7, wherein the film-forming chamber is kept at an internal pressure of 13 mPa or less, and the reaction

chamber is kept at an internal pressure of from 0.3 Pa
to 7 Pa.

✓
H

10098569.034803